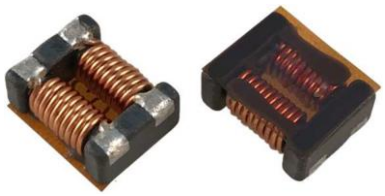
•FEATURE

1. Dual-winding configuration makes 1 unit
2. Unique square type closed magnetic core to make smaller size.
3. Low profile design makes it optimal for surface mounting.
4. Excellent impedance characteristics, making it great for suppressing common mode noise.
5. Operating Temperature -40 ~ +125 ℃
6. Compliant with AEC-Q200



•APPLICATION

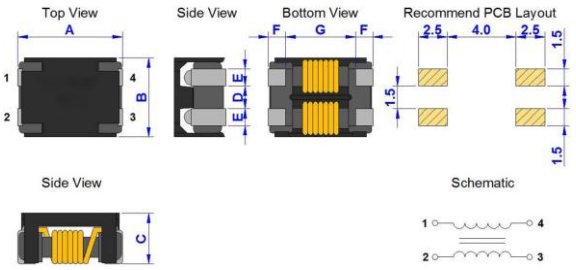
Common Mode Noise Countermeasure For Electronic Controller DC Power Lines, Power Supply Lines For Car Multi-Media Equipment And Various Electronic Devices.

•ORDERING INFORMATION

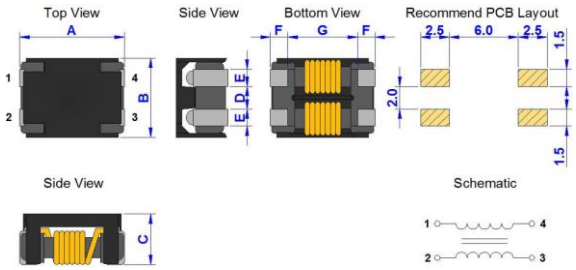
CMS	706035	-101	2T	1	Q
Series	Dimension (L*W*H)	Impedance (Ω)	Terminal Lines	Plating Terminal	AEC-Q

•SHAPE AND DIMENSION

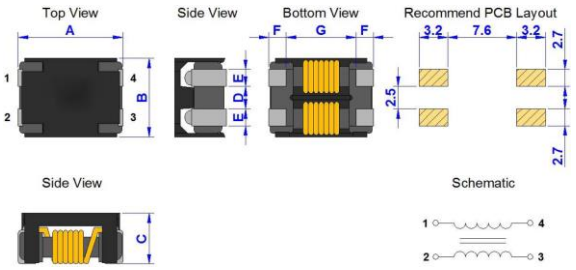
706038 Type



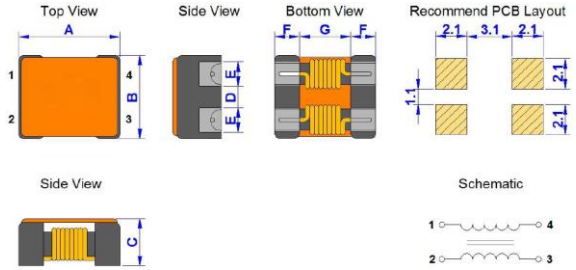
907048 Type



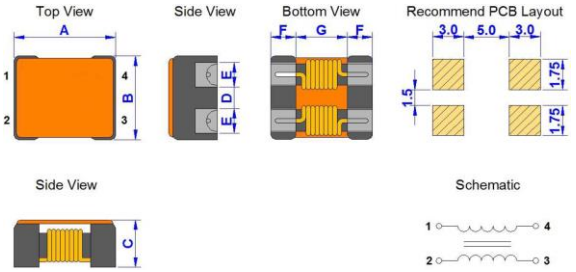
121160 Type



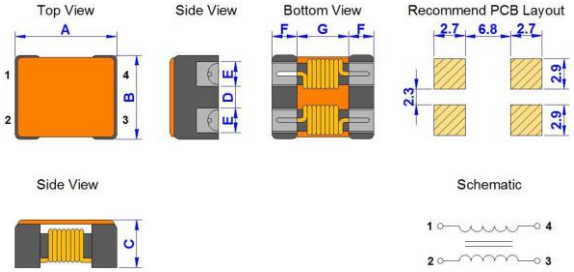
706035 Type



907045 Type



121164 Type



•SPECIFICATION

Unit: mm

TYPE	A	B	C	D	E	F	G
706038	7.00±0.50	6.00±0.50	3.80 Max.	1.50±0.20	1.50±0.20	1.50±0.20	4.00 Ref.
907048	9.00±0.50	7.00±0.50	4.80 Max.	2.00±0.20	1.50±0.20	1.50±0.20	6.00 Ref.
121160	12.50±0.50	10.50±0.50	6.00 Max.	2.50±0.20	2.70±0.20	2.30±0.20	7.40 Ref.
706035	7.00±0.50	6.00±0.50	3.50 Max.	1.50±0.20	1.70±0.20	1.70±0.20	3.50 Ref.
907045	9.00±0.50	7.00±0.50	4.50 Max.	2.00±0.20	1.50±0.20	1.70±0.20	5.70 Ref.
121164	12.00±0.50	10.80±0.50	6.40 Max.	2.50±0.20	2.70±0.20	2.50±0.20	7.00 Ref.

●ELECTRICAL CHARACTEISTICS

Part Number	Impedance (Ω) at 100MHz		DC Resistance N1, N2	Rated Current	Insulation Resistance	Rated Voltage
	Min.	Typ.	(mΩ) Max.	(A) Max.	(mOhm) Min.	(V) Max.
CMS706038-101-2T	100	140	6.0	9.0	10.0	80.0
CMS706038-301-2T	225	300	8.0	5.5	10.0	80.0
CMS706038-501-2T	275	500	10.0	5.0	10.0	80.0
CMS706038-701-2T	500	700	15.0	4.0	10.0	80.0
CMS706038-901-2T	700	900	20.0	3.0	10.0	80.0

* Rated Current: The actual value of DC current when the top surface of test sample temperature rise is ΔT = 40℃ (T_A = 25℃).

Part Number	Impedance (Ω) at 100MHz		DC Resistance N1, N2	Rated Current	Insulation Resistance	Rated Voltage
	Min.	Typ.	(mΩ) Max.	(A) Max.	(mOhm) Min.	(V) Max.
CMS907048-501-2T	350	500	8.0	6.0	10.0	80.0
CMS907048-701-2T	500	700	10.0	5.0	10.0	80.0
CMS907048-102-2T	750	1000	15.0	4.0	10.0	80.0
CMS907048-222-2T	1650	2200	100.0	2.0	10.0	80.0

* Rated Current: The actual value of DC current when the top surface of test sample temperature rise is ΔT = 40℃ (T_A = 25℃).

Part Number	Impedance (Ω) at 100MHz		DC Resistance N1, N2	Rated Current	Insulation Resistance	Rated Voltage
	Min.	Typ.	(mΩ) Max.	(A) Max.	(mOhm) Min.	(V) Max.
CMS121160-101-2T	100	140	3.5	10.0	10.0	80.0
CMS121160-301-2T	225	300	5.0	9.0	10.0	80.0
CMS121160-501-2T	350	500	5.5	8.5	10.0	80.0
CMS121160-701-2T	500	700	6.0	8.0	10.0	80.0
CMS121160-901-2T	700	900	10.0	6.0	10.0	80.0
CMS121160-102-2T	800	1000	12.0	5.0	10.0	80.0

* Rated Current: The actual value of DC current when the top surface of test sample temperature rise is ΔT = 40℃ (T_A = 25℃).

Part Number	Impedance (Ω) at 100MHz		DC Resistance N1, N2	Rated Current	Insulation Resistance	Rated Voltage
	Min.	Typ.	(mΩ) Max.	(A) Max.	(mOhm) Min.	(V) Max.
CMS706035-101-2T1	100.0	140.0	10.0	9.0	10.0	80.0
CMS706035-301-2T1	225.0	300.0	10.0	5.0	10.0	80.0
CMS706035-501-2T1	275.0	500.0	10.0	5.0	10.0	80.0
CMS706035-601-2T1	450.0	600.0	15.0	4.0	10.0	80.0
CMS706035-701-2T1	500.0	700.0	15.0	4.0	10.0	80.0
CMS706035-901-2T1	700.0	900.0	20.0	3.0	10.0	80.0
CMS706035-102-2T1	800.0	1000.0	20.0	3.0	10.0	80.0
CMS706035-132-2T1	910.0	1300.0	25.0	2.5	10.0	80.0
CMS706035-302-2T1	2500.0	3000.0	75.0	1.0	10.0	80.0

* Rated Current: The actual value of DC current when the top surface of test sample temperature rise is ΔT = 40°C (T_A = 25°C).

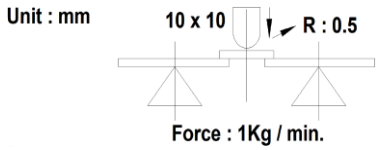
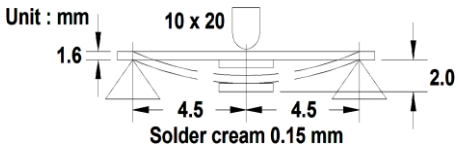
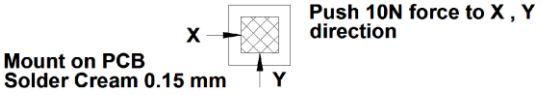
Part Number	Impedance (Ω) at 100MHz		DC Resistance N1, N2	Rated Current	Insulation Resistance	Rated Voltage
	Min.	Typ.	(mΩ) Max.	(A) Max.	(mOhm) Min.	(V) Max.
CMS907045-301-2T1	225.0	300.0	6.0	6.0	10.0	80.0
CMS907045-501-2T1	450.0	600.0	8.0	5.5	10.0	80.0
CMS907045-701-2T1	500.0	700.0	10.0	5.0	10.0	80.0
CMS907045-102-2T1	750.0	1000.0	13.0	4.0	10.0	80.0
CMS907045-202-2T1	1700.0	2000.0	60.0	2.5	10.0	80.0
CMS907045-272-2T1	2000.0	2700.0	65.0	2.0	10.0	80.0
CMS907045-302-2T1	2500.0	3000.0	70.0	3.0	10.0	80.0

* Rated Current: The actual value of DC current when the top surface of test sample temperature rise is ΔT = 40°C (T_A = 25°C).

Part Number	Impedance (Ω) at 100MHz		DC Resistance N1, N2	Rated Current	Insulation Resistance	Rated Voltage
	Min.	Typ.	(mΩ) Max.	(A) Max.	(mOhm) Min.	(V) Max.
CMS121164-701-2T1	500.0	700.0	6.0	8.0	10.0	80.0

* Rated Current: The actual value of DC current when the top surface of test sample temperature rise is ΔT = 40°C (T_A = 25°C).

●RELIABILITY

<table>
<tr><th>Test Item</th><th>Test Condition</th><th>Specification</th></tr>
<tr><td>Dimension</td><td>Actual Size ...</td><td>Meet Spec</td></tr>
<tr><td>Thermal Shock
(Temperature Cycle)</td><td>Temperature: -40 ~ +125℃ kept stabilized for 30 min. each
Cycle: 100 Cycles (power off)</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Humidity Resistance</td><td>Humidity: 90% ~ 95% RH
Temperature: 60 ± 2℃ Test Time: 96 ± 2 Hours</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>High Temperature</td><td>Temperature: 125 ± 2℃
Testing Time: 96 ± 2 Hours</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Low Temperature</td><td>Temperature: -40 ± 2℃
Time: 96 ± 2 Hours</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Temperature and
Humidity Cycle</td><td><table><tr><th>Temperature</th><th>Humidity</th><th>Time</th></tr><tr><td>25℃</td><td>90% ~ 95% RH</td><td>3.0 Hr</td></tr><tr><td>55℃</td><td>95% ~ 96% RH</td><td>5.0 Hr</td></tr><tr><td>25℃</td><td>90% ~ 95% RH</td><td>3.0 Hr</td></tr></table>Cycle: 20 Cycles</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Vibration</td><td>Frequency: 10Hz ~ 55Hz , Amplitude: 1.5 mm
Direction: X, Y, Z, Time: 2 Hours each</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Solderability</td><td>Go through real SMT IR-Reflow ....
The profile like our suggest profile.
Preheat: 160 ± 10℃ (90 sec)
Peak: 245 ± 5℃
Peak Time: 50 Sec. / up 217℃</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Soldering Heat
Resistance</td><td>Preheat: 160 ± 10℃ (90 sec)
Solder: Sn / Ag / Cu (Pb Free)
Solder Temp.: 260 ± 5℃, Time: 3 ± 1 seconds</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Iron Solder Heat
Resistance</td><td>Solder Temp.: 350 ± 5℃
Flux: Rosin, Time: 3 ± 1 seconds</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Bending Strength</td><td> 
</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Flexure Strength</td><td> 
</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Terminal Strength</td><td> 
</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>High-Voltage</td><td>100 V DC between core & winding</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Load life</td><td>Temperature: 25 ± 3℃
Load: Allowed DC Current, Test Time: 96 ± 2 Hours</td><td>Elec. no variation
Appearance no deformation</td></tr>
</table>

•TEST EQUIPMENT

1. HP4284A, HP42841A - L, Q, DCR, IDC
2. HP8753D Network analyzer – SRF

•OPERATING & STORAGE CONDITION

1. Operating Temp: -40 ~ +125℃ (Including self - temperature rise)
2. Storage Temp: a. Product with Taping: -10 ~ 45℃, 50 ~ 60% RH
   b. On Board: -40 ~ +125℃
3. Storage Life Time: 6 Month (Less than 40℃ and 60% RH)

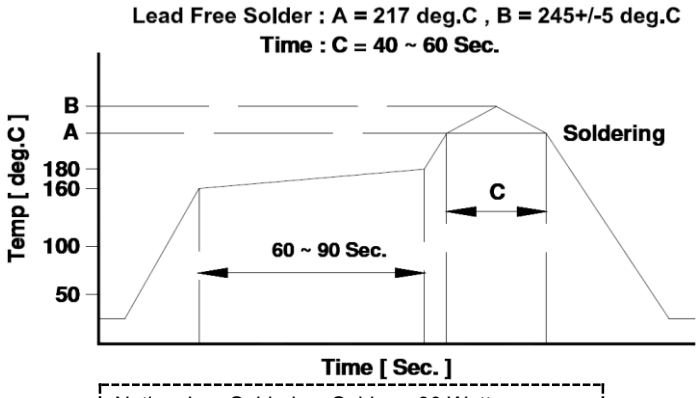
Standard Atmosphere Conditions:

Ambient Temperature 20 ± 15℃; Humidity RH 65 ± 20%

If there may be any doubt on the test result, Measurement shall be made within the following limits:

Ambient Temperature 25 ± 5℃; Humidity RH 75 ± 10%

•RECOMMEND IR REFLOW CURVE (TIME: Second)



Notice: Iron Soldering, Solder < 30 Watt,
Direct touch the terminal x 3 Sec. Max. @ 350℃

•ATTENTION & CAUTION

* Keep out of Splashing water or salt water
* Avoid Toxic Gas (Hydrogen sulfide, Sulfurous acid, Chlorine, Ammonia)
* Vibrations or shocks which exceed the specified condition
* Dew condense
* Layout near the edge of PCB
* Over flexure after SMT mounting & PCBA
* Pin foot or SMD pad solder ability: Pb free type is best within 6 months after delivery
* Humidity sensitive, IPC/JEDEC J-STD-020 MSL if over Level 1, recommend bake 30mins@150℃ before PCBA
* Caution for human life relative applications: PLS contact & consult with AiT team in design stage.

Care Note for Use:

(1) Storage Condition:
Temperature 25 to 35℃, Humidity 45 to 60% RH

(2) Use Temperature:
a. Minimum Temperature: -40℃ Ambient temperature of this product.
b. Maximum Temperature: +125℃ The value of temperature including ambient and temperature rise of this product.
c. Reliability test temperature range from -40 ~ +125℃
d. However, this is not meant as temperature grade guarantee for UL.

(3) Model:
When this product was used in a similar or as new product to the original one, sometimes it might be unable to satisfy the specifications due to difference in condition of usage.

(4) Drop:
If this product suffered mechanical stress such as drop, characteristics may become poor (due to damage on coil / bobbin / ferrite … etc.)
Never use such stressed product.

Care Note for Safety:

(1) Provision to Abnormal Condition:
This product itself does not have any protective function in abnormal condition such as overload, short-circuit and open-circuit conditions, etc.
Therefore, it shall be confirmed from the end product that there is no risk of smoking, fire, dielectric withstand voltage insulation resistance, etc. in abnormal conditions to provide protective devices and /or protection circuit in the end product.

(2) Temperature Rise:
Temperature rise on this product depends on the installation condition on end products.
It shall be confirmed on the actual end product that temperature rise of this product is within the specified temperature class limit.

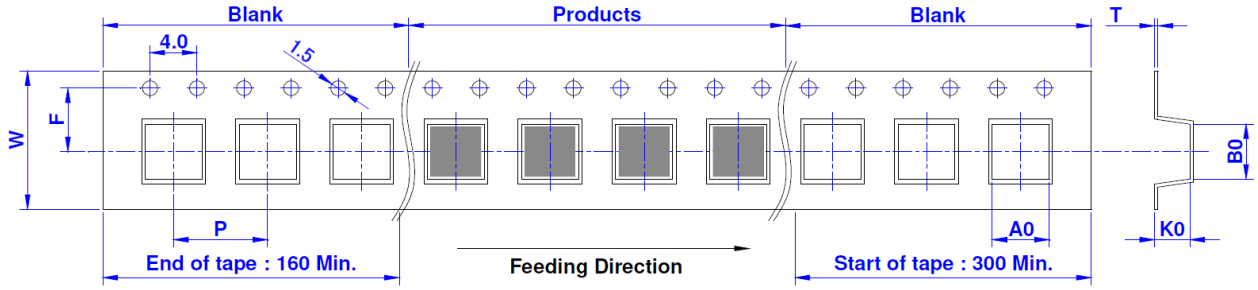
(3) Dielectric Strength:
Dielectric withstanding test with higher voltage than specific value will damage insulating material and shorten its life.

(4) Water:
This product must not be used in wet condition resulted from water, coffee or any liquid contact because insulation strength becomes very low under such condition.

(5) Potting:
If this product is potted in some compound, coating material of magnet wire might be occasionally damaged. Please ask us if you intend to pot this product.

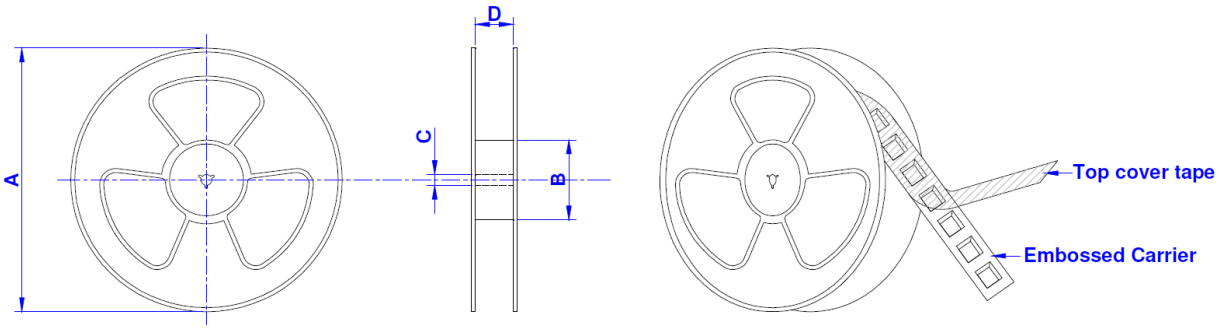
(6) Detergent:
Please consult AiT Semi immediately once under such circumstances because product reliability confirmation etc. is needed when this product come in contact with these chemicals.

•TAPE DIMENSION: mm



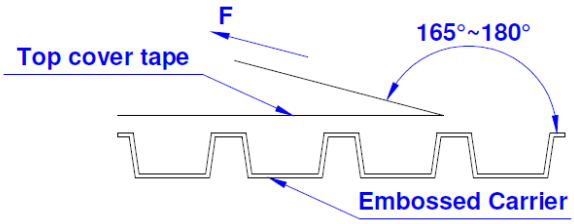
Size/mm	W	P	A0	B0	K0	T	F
706038	16.0	8.0	6.60	7.60	3.60	0.40	7.5
907048	16.0	12.0	8.60	9.60	4.80	0.40	7.5
121160	24.0	16.0	13.20	13.50	6.40	0.50	11.5
706035	16.0	8.0	6.60	7.60	3.60	0.40	7.5
907045	16.0	12.0	7.60	9.60	4.60	0.40	7.5
121164	24.0	16.0	13.25	12.70	6.50	0.40	11.5

•REEL DIMENSION: mm



Size/mm	REEL SIZE	A	B	C	D	QTY / REEL
706038	13" x 16mm	330	100	13	16.5	1000 PCS
907048	13" x 16mm	330	100	13	16.5	800 PCS
121160	13" x 24mm	330	100	13	24.5	500 PCS
706035	13" x 16mm	330	100	13	16.5	1000 PCS
907045	13" x 16mm	330	100	13	16.5	800 PCS
121164	13" x 24mm	330	100	13	24.5	500 PCS

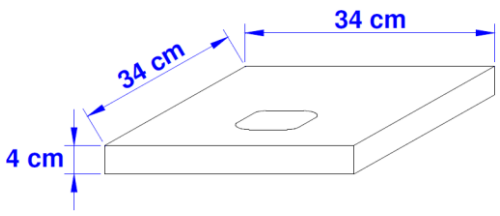
•TEARING OFF FORCE:



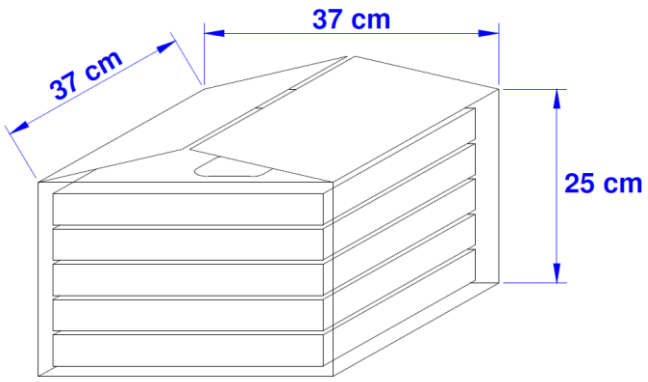
The force for tearing off cover tape is 10 to 130 grams in the arrow direction under the following conditions (referenced ANSI/EIA - 481 - D - 2008 of 4.11stadnard).

Room Temp. (℃)	Room Humidity (%)	Room Atm. (hPa)	Tearing Speed (mm/min)
5 ~ 35	45 ~ 85	860~1060	300

•BOX PACKAGE: cm



13" Small Box



Large Box

SIZE/mm	Reels in Small Box	Small Box in Large Box
706038	1	5
907048	1	5
121160	1	5
706035	1	5
907045	1	5
121164	1	5

IMPORTANT NOTICE

AiT Semiconductor Inc. (AiT) reserves the right to make changes to any its product, specifications, to discontinue any integrated circuit product or service without notice, and advises its customers to obtain the latest version of relevant information to verify, before placing orders, that the information being relied on is current.

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AiT Semiconductor Inc. assumes to no liability to customer product design or application support. AiT warrants the performance of its products of the specifications applicable at the time of sale.